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would like to receive from American entomologists copies of their papers containing descriptions of new species of this group issued since the publication, in 1876, of Packard's monograph of American geometrids.

— The lecture course of the New York Academy of Sciences opened on December 14th, by a lecture on the genealogy of the Mammalia by Professor E. D. Cope. The next lecture will be January 11th, 1886, by Professor E. S. Morse, on Prehistoric Man in America.

— Professor Joseph Prestwich has a treatise on geology in the Clarendon Press. He advocates non-uniformitarian views of geology.

— Professor H. Weyenburgh died at Haarlem, July 25. He was professor of zoölogy in the university of Cordova, Argentine republic. He did a great deal for progress in his science, and of a set of thorough-going entomologists in that country he was chief.

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## PROCEEDINGS OF SCIENTIFIC SOCIETIES.

THE INTERNATIONAL GEOLOGICAL CONGRESS, at Berlin, Sept. 29th to Oct. 3, 1885.—The third and most important session of the International Geological Congress, which was instituted by an American committee of the A. A. A. S., at its Buffalo meeting in 1876, has just been held.

The first session at Paris, in 1878, was really a *pourparler* which broke ground. The next session at Bologna, in 1881, accomplished something, but was especially useful in preparing for the work of the session just closed by deciding to produce a geological map of Europe on a scale of  $\frac{1}{1,500,000}$ , and entrusting its execution to one committee, while another was appointed to devise some scheme for unifying the nomenclature and, where possible, of fixing the limits of various congeries of beds which had heretofore been differently understood by different geologists. The obstacles which faced these committees will be at once understood from this bare statement and will modify any hasty impression that, in fact, very little has been accomplished.

The two committees, or a majority of members of each, met at Foix, and at Zurich, during the four years which intervened between the Congresses of Bologna and Berlin, and the action of the congress which has just ended was almost exclusively confined to the propositions made in the printed reports of these committees.

Those who arrived in Berlin some days before the opening of the congress found, at the superb Bergakademie on the Invaliden

strasse, a bureau organized to examine the credentials of delegates and provide each with the necessary card and receipt for the ten marks cotisation, besides a medal in silver bearing the inscription on one side: "Geologorum Conventus. Mente et Malleo," with the conventional schlägel und eisen crossed and surrounded by a wreath of oak. On the other side, within a similar wreath were the words: "Berlin, 1885." The medal was suspended by a white satin ribbon and worn on the lapel of the coat for identification on excursions, etc.

A programme of the order of events may be thus condensed: Monday, Sept. 28, at 10 A. M., meeting of the council at the Reichstagsgebäude; 5 P. M. social reunion of the members of the congress in the ante-chamber of this palace. Tuesday, Sept. 29, 11 A. M., opening of the congress; 2 P. M., visit to the Bergakademie to view the collections and the objects sent to the congress. Wednesday, Thursday, Friday and Saturday, sitting of the congress at 2 P. M. 7 P. M. Saturday, close of the congress. Sunday, 9 A. M. excursion to Potsdam. Then followed announcements of the excursions to the Hartz, to Stassfurt, etc. This programme was followed in the main, only an extra session of the congress being intercalated. The usual course was to devote two hours to the discussion of the committees' reports (2 to 4 P. M.), and the last two hours (4 to 6 P. M.) to scientific discourses of various delegates.

The weather during the entire week was very disagreeable, cold and rainy. On Sunday morning after the close of the congress, it promised to be fair, but only to deceive the hopes of those who took part in the Potsdam excursion. The commencement of this trip was very beautiful, but towards the close it degenerated into a procession of dripping and shivering people who tried to look as if it were pleasant in order not to offend their kind hosts.

The language of the congress had been decided upon as French, and this, no doubt, accounts for the greater share taken by the Swiss, Belgians, and French in the debates, than by the people of other nationalities. The Germans, for instance, who outnumbered all other nationalities taken together several times over, had only one representative who managed the language with fluency and led in debate—M. Hauchecorne, the active spirit of this congress. It is true that M. Neumayer retorted very effectively once to M. Lapparent, and his excellency v. Dechen spoke frequently, if not easily; but Dr. Beyrich, the nominal president, was entirely unintelligible, and M. Stur was obliged to get a dispensation from the congress and speak in German.

*Report of Proceedings.*—On Tuesday evening at 6 o'clock, M. Renevier, of Switzerland, the secretary of the committee appointed to prepare the European map, with a few preparatory words explaining that what he was about to read did not emanate from him but from the committee, presented this report.

The committee appointed to prepare the map was thus constituted: Beyrich and Hauchecorne (formerly the sub-committee of direction in Berlin), Germany; Daubrée, France; Giordano, Italy; de Moeller, Russia; Mojsisovics, Austro-Hungary; Topley, Great Britain; Renevier (secretary general), Switzerland. The committee of direction had made an arrangement with D. Reimer & Co., of Berlin, according to which this firm agreed to undertake the publication of the map at its own risk, provided the committee would guarantee them an edition of 900 copies at 100 francs a copy, and would advance them sums on account.

The map is to consist of forty-nine sheets—7 in breadth and 7 in height. Each of these sheets is 48 by 53<sup>cm</sup> and the whole of them together will form a chart 3.36 meters high and 3.71 meters broad. Professor Kiepert, of Berlin, is to prepare the topographic base, using for the purpose all data at his disposition, both published and unpublished. Great Britain, France, Spain, Italy, Austro-Hungary, Germany, Scandinavia, and Russia, each takes 100 copies = 800. The remaining 100 copies are to be divided between the six smaller States, Belgium, Holland, Denmark, Switzerland, Portugal, and Roumania. The central committee is to receive from each national committee the maps of its country and to make them harmonize.

The report ends with the following six resolutions, which the committee asked the congress to pass:

- I. M. Karpinski will succeed M. de Moeller (resigned), in representing Russia on the committee.
- II. The *Carbonic* system (or Permo-carboniferous) shall be represented on the map by three distinct shades of gray.
- III. Brown shades will be applied to the "*Devonic*."
- IV. The color to represent the "*Siluric*" is left to the discretion of the committee.
- V. The eruptive rocks shall be represented by seven tints ranging from bright red to dark-brownish red.
- VI. The determination of the other questions mentioned in the report shall be left to the discretion of the committee.<sup>1</sup>

Proposition I was adopted without dissent.

Proposition II after much opposition was agreed to with the understanding that the proposed method of the committee should not be understood to have any bearing on the scientific settlement of the question, but should be regarded purely as a provisional expedient adopted in order to complete the map.

Proposition III was agreed to.

<sup>1</sup> The questions here referred to, comprise several matters about which the committee was in doubt, e. g.: *a.* How are the terranes to be represented, of which the subdivisions were doubtful? *b.* How are those subdivisions to be indicated which are too small to appear on the adopted scale of  $\frac{1}{1500000}$ ? *c.* How are measures to be represented when even their age is doubtful? How represent subdivisions concerning the affiliations of which geologists differ (Gault, Rhetien, etc.).

Proposition iv, after strong opposition from Professor Hughes and M. Jacquot, was finally so modified as to allow the committee to adopt it provisionally for the purposes of the map without prejudging abstract scientific questions at all, and thus carried.

Propositions v and vi were carried without objection.

Sept. 30, 1885, at 2.30 P. M., the congress reassembled to take action on the report of the committee on the unification of nomenclature which was then presented by M. Dewalque.

The reading of this report, which was much longer than the other, was taken up at p. 13, A.

The thirteen pages of the report thus skipped had been in the main adopted at the Bologna Congress, a few minor points having been left for future adjustment. They concerned for the most part definitions of terms such as "group," which it was advised should be applied to the division of the highest order (*e. g.* secondary group, etc.); the next division should be *systems* (Devonian system, etc.); the third should be *series* (*e. g.* the coal measures series of the Carboniferous system); the fourth division should be *stages* ("étages") (millstone grit, *stage*, etc.); the division of the fifth order was decided upon for French only, "*assise*" or "*couches*." "*Zone*" should be used for a number of beds having one or more fossils to characterize them, but it should be inferior as an order of classification to "*stage*." "*Bank*" was selected to imply a bed (*couche* or *assise*), thicker or more coherent than those in its vicinity, among which it is intercalated. These and certain conclusions as to the application of the terminations "ary," "ic," and "ian"—the first for the groups, the second for the series, and the third for the stages—completed the linguistic portion of the report. It is to be observed that no adjective termination to precede system was proposed.

The remainder of the report, unacted upon, concerned subjects partly implied in the later portions.

*Archæan*.—It was decided to give to the Pre-palæozoic rocks the name Archæan instead of Primitive, and while recognizing three divisions to allow each geologist to distinguish them by petrographic characters.

*Silurian*.—On the motion of Professor Archibald-Geikie, the decision as to the limits of the Silurian and Devonian is left till the meeting of the congress in London in 1888, but the committee on the chart has liberty to divide the lower system of the Palæozoic group into three parts of which the names will be determined upon later.

*Devonian*.—After a long and exciting discussion, it was proposed:  
*a.* That the Devonian should be divided into three parts corresponding respectively with those termed the Rhenan, the Eifelian, and the Famennian. *b.* That the calceola beds should form part of the Eifelian. *c.* "That the upper limit of the Devonian should be drawn at the base of the Carboniferous limestone, that is to

say, the system which includes the psammities of Condros and the upper Old Red" [the words "the Lower Carboniferous (Kilborkan, Marwood, Pilton)" and "or the calciferous sandstone Dura Den" were stricken out of the committee's resolution at the request of Professor A. Geikie as not representing the real associations of these beds].

*Carboniferous*.—The question of associating the Permian with the Carboniferous provoked the most interesting discussion of the congress, Stur of Vienna, Lapparent, Blanford, and Professor Newberry spoke in favor of such union. Hughes, Topley, Nikitin, and a great many others spoke against the association. Professor Newberry in the course of his remarks, said that "his honored colleague, Professor Hall, was of the opinion that the Permian did not exist in America, and that his own studies confirmed this view." M. Neumayr thought "the decision of such questions as this should not depend upon a majority vote which would change in each country, and after each eloquent speaker (referring to M. Lapparent's brilliant defense of the committee's proposition). This view was finally taken, and the congress adopted, with about fifteen dissenting votes, the following proposition formulated by M. Dewalque:

"The congress not wishing to pronounce an opinion on the scientific question will leave the classification as it is."

*Triassic*.—After much debate the three-fold division of the Triassic was agreed to, but without giving names to the divisions.

*Jurassic*.—The division of this system into three was adopted, but without specifying the names of the divisions.

It was agreed that each geologist might draw the upper horizon of the lias where he thought best.

*Cretaceous*.—It was agreed that the Gault should be joined to the Cretaceous.

*Tertiary*.—The divergence of views on this subject was so great that M. Capellini then in the chair, cut short the whole question by asking for a vote of confidence in the committee, which was unanimously given.

*Eruptives*.—Finally the seven-fold division of the eruptive rocks, in as many tints of red, was carried without opposition.

This completed the serious geological work of the congress, and it was then agreed to meet in London in 1888. A committee consisting of Hughes, Geikie, Blanford and Topley was appointed to make the necessary arrangements, and the congress adjourned.

During the course of the congress addresses were given by M. Gaudry on certain reptiles; Newberry, on a new large Devonian fish from America; Posepuy, on the fluid condition of the earth's interior; Ochsénus (in German), on the origin of salt deposits; Neumayr, on the plan for the "nomenclator palæontologicus," which he is compiling (and which the congress voted to publish under its auspices and through the agency of a special committee consisting of MM. Gaudry, Zittel, and Neumayr); M. Nikitin

presented his map of the Middle and Southeast Russia, including the valley of the Volga; M. Vasseur, thirteen sheets of the map of France; and Dr. Frazer, on behalf of Mr. McGee, presented an explanation of the methods employed by the director of the United States Geological Survey.

The delegation which represented the United States at this congress consisted of Professor James Hall and Professor J. S. Newberry, members of the original committee which suggested the congress; Professor D. Ph. H. S. Williams and Professor D. Sc. Persifor Frazer, who were elected by the American Association for the Advancement of Science at its Ann Arbor meeting. Besides this, Professor Brush was elected by the committee under the powers granted to it. Mr. J. F. Kemp (assistant to Professor Newberry), Mr. H. B. Patton (student), and Mr. H. E. Miller (chemist), from America, also appeared on the roll of the congress. The last two named were not known to the secretary, who cannot say whether or not they attended the sittings. Mr. McGee, representing Maj. Powell and the U. S. Geological Survey, arrived after the sessions had commenced.—*From Science, Oct. 30, Persifor Frazer, Secretary of the American Committee delegates.*

[*Note.*—A more detailed report, giving the debates in part, will appear shortly in the *Am. Journ. of Sci. and Arts.* In *Science* for Dec. 11, Professor Dewalque does not agree as to the action on paragraph *C. c.* under the Devonian. I am sorry not to feel authorized to change it. Several members of the congress think that the action was as above stated.—*P. F., Dec. 15, 1885.*]

NATIONAL ACADEMY OF SCIENCES, Albany, Nov. 10–12, 1885. —The following papers were presented: Obscure heat, by S. P. Langley; A new form of craniophore, for taking composite photographs, by John S. Billings; The carboniferous xiphosuran fauna of America, by A. S. Packard; Stellar photography, by E. C. Pickering; Two new forms of polyodont and gonorhynchid fishes, from the Eocene of the Rocky mountains, by E. D. Cope; Yale College Observatory, New lines on the spectra of certain stars, by O. T. Sherman (by invitation); Certain stars observed by Plamsted, and supposed to have disappeared, by C. H. F. Peters; Remarks upon the international geographical congress at Berlin, with a brief historical notice of the origin of the congress, by James Hall; Notes on some points in the geology of the Mohawk valley, by James Hall; When shall the astronomical day begin? by Simon Newcomb; Primordial rocks among the Waffinger valley limestones near Poughkeepsie, N. Y., by William B. Dwight (by invitation); The errors of star catalogues, by C. H. F. Peters; Preliminary report on the investigation relating to hereditary deafness, by A. Graham Bell; The new star in the nebula of Andromeda, by C. A. Young; Recent progress in economic entomology, by J. A. Lintner (by invitation); Remarks on the stone ruins of the Colorado and the Rio Grande, by J. W. Powell;

The New York State herbarium, by Charles H. Peck (by invitation); The formation of a polar catalogue of stars, by T. H. Safford (by invitation); A section through the southern tertiaries, by Otto Meyer (by invitation); Remarks upon the Lamellibranchiate fauna of the Devonian rocks of the State of New York, and the results of investigations made for the palæontology of the State, by James Hall; Recent discoveries of gigantic placoderm fishes in the Devonian rocks of Ohio, by J. S. Newberry; The flora of the Cretaceous clays of New Jersey, by J. S. Newberry.

ACADEMY OF SCIENCES OF INDIANA.—The preliminary circular proposing the formation of a State Academy of Science of Indiana, issued by authority of the Brookville Society of Natural History, has elicited such a general response in favor of the movement that there has been issued a circular calling a meeting of all of the people of Indiana interested, to be held in the criminal court room (Hall of Representatives) of the Marion county court house, at Indianapolis, Ind., on Tuesday, December 29, 1885, at 2 o'clock P. M.

In order that a proper understanding may be had of the present state of scientific study in Indiana, it has been thought advisable to ask from competent authority a statement of the present condition of each branch of science that is being studied within the borders of our State. The following persons have kindly consented to present papers upon the several subjects mentioned.

Richard Owen, M.D., Sketch of the work accomplished for Natural and Physical Science in Indiana; David S. Jordan, M.D., Ichthyology; Professor John M. Coulter, Botany; Professor J. P. Naylor, Physics; R. T. Brown, M. D., Geology; Professor O. P. Jenkins, Lower Invertebrates; E. R. Quick, Mammalogy; Professor Robert B. Warder, Chemistry; Professor O. P. Hay, Herpetology; Daniel Kirkwood, LL.D., Astronomy; P. S. Baker, M.D., Entomology; Maurice Thompson, Mineralogy; Rev. D. R. Moore, Conchology; Sergeant Orin Parker, Meteorology; J. B. Conner, Statistics; A. W. Butler, Ornithology.

NEW YORK ACADEMY OF SCIENCES, Nov. 9.—The following paper was presented: Description of some gigantic placoderm fishes recently discovered in the Devonian of Ohio (with illustrations), by Dr. J. S. Newberry.

Nov. 16.—The following paper was read: The rise and progress of invertebrate Zoölogy, by Dr. J. B. Holder.

Nov. 23.—The following paper was read: The preservation of building materials by the application of paraffine, as recently used upon the obelisk (illustrated with apparatus and experiments), by Mr. R. M. Caffall.

Nov. 30.—The following papers were presented: On meteoric irons (1. From Glorietta mountain, Santa Fé county, New Mexico; 2. From Jenny's Creek, Wayne county, West Va.), by Mr. Geo. F. Kunz; Minerals of Harlem and vicinity, by Mr. B. B. Chamberlin.